REMARKS

This paper is responsive to the Office Action dated July 6, 2006 (the "Office Action").

Claims 1-150 were previously pending in the application, with claims 47-112 previously withdrawn from consideration.

Claims 148 and 149 have been withdrawn in this paper.

Claims 1, 3, 11, 14, 18, 24, 37, 47, 54, 57, 59, 62, 73, 81, 86, 89, 91, 94, 105, 113, 119, 120, 122-125, 127-136, 138-145, and 147-150 have been amended in this paper.

Claims 151 and 152 have been added and no claims have been cancelled.

Accordingly, claims 1-152 are now pending, with claims 47-112, 148, and 149 withdrawn from consideration.

Claims 1-46 and 113-150 stand rejected.

The amendments to the claims add no new matter and are fully supported by the original specification, for example on pp. 13-18 and 21-22 (among others).

Formal Matters

Claims 148 and 149 were added in Applicant's previous amendment, dated June 15, 2006. The Office Action on p. 2 requests that claims 148 and 149 be amended, since these claims depend on previously withdrawn claims. Applicant understands this request as indicating that claims 148 and 149 are directed to subject matter that was previously withdrawn as a result of the Restriction requirement dated August 10, 2005, and that the Examiner therefore requires claims 148 and 149 to be similarly withdrawn. Accordingly, Applicant has now withdrawn claims 148 and 149.

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Rejections under 35 U.S.C. § 103(a)

Claims 1-6, 10-47, 54, 58, 62, 73, 81, 86, 90, 94, 105, and 113-150 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,282,170 issued to Bentall et al. ("*Bentall*") in view of U.S. Patent No. 5,737,319 issued to Croslin et al. ("*Croslin*"). Claims 7-9 stand rejected under § 103(a) as being unpatentable over *Bentall* in view of *Croslin* and further in view of U.S. Patent No. 6,324,162 issued to Chaudhuri ("*Chaudhuri*"). Applicant notes that claims 54, 58, 62, 73, 81, 86, 90, 94, and 105 have been withdrawn from consideration. Nonetheless, Applicant is grateful for the Examiner's review of these claims.

Applicant respectfully submits that the claims are allowable under § 103(a) because the Office Action fails to establish an appropriate suggestion or motivation for making the proposed combination of the references, and because cited references, taken either individually or in combination, fail to disclose each limitation of the pending claims. For example, independent claim 1 as is directed to a method for restoring a virtual path in an optical network and includes limitations of:

> broadcasting a plurality of resource request packets to a plurality of nodes in said optical network;

and

> dynamically identifying a plurality of nodes with resources as a result of said broadcasting, wherein said nodes with resources are ones of said nodes having a resource necessary to support said virtual path.

The Office Action presents inconsistent arguments with regard to these limitations. On p. 3, the Office Action proposes that the limitation of "broadcasting" is described in portions of *Bentall* that describe the sending of messages along alternative routes to determine spare capacity (*Bentall at* FIG. 3, 5:47-54.)

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However, with regard to the limitation of "dynamically identifying a plurality of nodes with resources as a result of said broadcasting," the Office Action turns on p. 2 to a different set of passages from *Bentall* to describe the same "broadcasting." In these new passages, *Bentall* determines that a route has failed, selects a chooser node in the vicinity of the failed part, determines alternative routes, and determines spare capacity on each route (*Id. at* FIG. 4, steps 110-113; 5:62—6:10), and the *Bentall* chooser node acknowledges a shortest route for each path with sufficient capacity by sending a message back to a sender (*Id. at* FIG. 9, step 142).

It is not clear that the separate portions cited by in the Office Action refer to the same actions, or that these actions each interact with the other cited portions of *Bentall* to achieve the limitations related to "broadcasting" in Applicant's claim 1.

Additionally, claim 1 as amended also includes:

dynamically identifying an intermediate node without resources as a result of said broadcasting, wherein said node without resources is one of said nodes lacking a resource necessary to support said virtual path.

This limitation is not disclosed in the cited art. At best, *Bentall* discloses the gathering of information on possible alternative routes, and a chooser node that finds a shortest route with sufficient capacity for a path, as set forth in the following passages.

According to a first aspect of the invention there is provided a method of restoring a route set up in a network following a failure of part of the network, the network comprising a plurality of fixed nodes, and links interconnecting the nodes, wherein the restored route is allocated, the method comprising the steps of:

selecting a restoration route around the failed part;

allocating to the restoration route at least a portion of the capacity of the links it uses;

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determining if the restoration route already set up can be optimised so as not to use at
least one of the links currently used by the restoration route;

changing the restoration route according to the result of the determination; and

making available the capacity allocated to the restoration route on the link or links no
longer used, for use in setting up other routes.

Improved capacity allocation can be achieved if restored routes already set up are
examined to see if they can be optimised.

Advantageously the method also comprises the step of interrogating nodes on the route to
gather information on possible alternative routes. Gathering information on possible
alternative routes means there is no need to have preplanned preferred routes or
centralised knowledge of the configuration of the network, and thus the optimisation can
be adaptive and easily take account of changes in network configuration.

(*Bentall* at 2:55—3:15.)

The chooser acknowledges the shortest route for each path with sufficient capacity for the
path, by sending a message back to the sender, at step 142 of FIG. 9. The database of
alternative routes can be amended to reflect the reduced spare capacity available for other
virtual paths, at step 143.

(*Id.* at 8:14-19.)

The above cited passages from *Bentall* describe "[g]athering information" on possible

alternative routes. The gathering of information involves interrogating nodes. This gathering of

information in *Bentall* is used to avoid the need for preplanned alternative routes. It is also used

to avoid the need for centralized knowledge of the configuration of the *Bentall* network. These

passages also explain that the *Bentall* chooser node acknowledges the shortest route for each path

with sufficient capacity for the path.

None of these passages, however, disclose the identification of an intermediate node

without resources as a result of the broadcasting. The node without resources is a node that lacks

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a resource necessary to support the virtual path in Applicant's claim 1. Indeed, *Bentall* does not suggest, teach or disclose the participation of any such node without resources.

Further, this limitation is also not disclosed in *Croslin*. *Croslin* describes a dynamic network restoral application that directs a switching element to select an alternate transmission segment to replace a severed one. (*Croslin at* col. 1, lines 50-67.) Applicant sees no description in *Croslin* of an identification of nodes without resources as a result of a broadcasting of a plurality of resource request packets. Additionally, Applicant does not find this limitation in *Chaudhuri*.

The cited art therefore does not describe the limitation from Applicant's claim 1 of **"dynamically identifying an intermediate node without resources as a result of said broadcasting, wherein said node without resources is one of said nodes lacking a resource necessary to support said virtual path."** At least for this reason, Applicant's amended claim 1 and all claims dependent therefrom are allowable under § 103(a). For at least similar reasons, Applicant's independent claim 113 and all claims dependent therefrom are also allowable under § 103(a).

Applicant submits that the Office Action additionally fails to set forth a prima facie case of obviousness because the Office Action fails to establish a suggestion or motivation, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The Office Action proposes on p. 4 that the motivation for combining *Bentall* and *Croslin* "is to avoid the dependen[ce] of the limit preplanned routes and [to] reduce the time delay." However, this proposed motivation would not commend a person having ordinary skill in the art to make the

proposed combination of *Bentall* and *Croslin*, because *Bentall* itself includes features that satisfy

the proposed motivation. Indeed, the motivation proposed in the Office Action are goals that are

achieved by the *Bentall* system.

Bentall provides a system that interrogates nodes on a route to gather information on

possible alternative routes. (*Bentall at* 3:9-11.) Because of this feature, "there is no need [in

Bentall] to have preplanned preferred routes or centralised knowledge of the configuration of the

network." (*Id. at* 3:11-15.) *Bentall* also teaches techniques for making initial, possibly non-

optimized, restoration routes. "The restoration route may be completed without delay. If it can

be optimised subsequently, it will be changed, to eliminate any loops, or to use routes further

away from the failed part, to avoid congestion close to the failed part." (*Id. at* Abstract.) Thus, a

person having ordinary skill in the art would have no need to look beyond *Bentall*, and would in

particular have no need to turn to *Croslin*, with the proposed motivation of avoiding a

dependence on or limit of preplanned routes, or reducing time delay, since these goals are

achieved adequately and completely in *Bentall*.

Further, it is not clear how the teachings of *Croslin* would be used to augment these

goals, since these goals are not discussed in *Croslin*. The Office Action does not set forth any

explanation of how the *Croslin* system would further these goals of the *Bentall* system.

Applicant also does not see any such advantage from combining the *Bentall* and *Croslin* systems.

Indeed, it is not clear how a combination of the *Bentall* and *Croslin* systems could be

made. The cited *Croslin* procedure is at odds with the teachings of *Bentall*, since *Croslin* notes

that "[d]ynamic network restoral processes require a timely and accurate portrayal of the network

topology" at the time of network outages. (*Croslin at* 1:53-57.) In *Croslin*, a network topology

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database is maintained and frequently updated. The database reflects the current real-time physical connectivity of the *Croslin* communications network. (*Id.* at 2:60-63.)

In contrast, *Bentall* particularly teaches the gathering of information to avoid such reliance on detailed portrayals of network topology. "Gathering information on possible alternative routes means there is no need to have preplanned preferred routes or centralised knowledge of the configuration of the network, and thus the optimisation can be adaptive and easily take account of changes in network configuration." (*Bentall at* 3:9-15.)

Thus, the teachings of *Bentall* and *Croslin* are directed at cross purposes, with *Bentall* teaching away from *Croslin*. Where *Bentall* describes techniques for avoiding a need for knowledge of a network topology, *Croslin* teaches techniques for determining network topology in support of processes that specifically require such knowledge. A person having ordinary skill in the art would therefore not use these references in furtherance of each other's teachings, and would not have a motivation to combine these references—even with the Final Office Action's proposed goal of "to avoid the dependen[ce] of the limit preplanned routes and [to] reduce the time delay." The proposed motivation would not in fact lead a person having ordinary skill in the art to make the combination of *Bentall* and *Croslin*. For this reason as well, the pending claims are allowable under § 103(a).

Additionally, no motivation or suggestion has been established for the proposed combination of *Chaudhuri* with *Bentall* or *Croslin*. The Office Action proposes this three-way combination on p. 7 in support of the rejections of claims 7-9, but is simply silent with regard to what the motivation may be for such a combination.

"The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done." MPEP § 2142. The Office Action does not meet this burden and thus, for this additional reason as well, fails to establish a prima facie case of obviousness with regard to claims 7-9.

Additionally, with respect to Applicant's **dependent claim 32**, the Office Action does not set forth any grounds for the rejection of this claim. The discussion of the pending rejections is silent with regard to claim 32. Applicant respectfully submits that claim 32 is allowable over the cited art.

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Additionally, with respect to Applicant's **dependent claim 11**, the Office Action proposes on p. 5 that the limitations are disclosed in step 143 of *Bentall's* FIG. 9, which amends a database to reflect a reduced spare capacity, and in related material from col. 8 of *Bentall*. Applicant respectfully disagrees.

Applicant's dependent claim 11 includes limitations of:

> determining an available different physical port of a link between said first node and said adjacent nodes,
> initiating a physical port switch request for said adjacent node,
> provisioning said virtual path to said different physical port, and
> updating a provisioning information in a node database.

None of these limitations are described in the cited material. For example, the cited material does not disclose or even hint at the limitation of "initiating a physical port switch request for said adjacent node." At least for this reason, claim 11 is additionally allowable over the cited art. At least for similar reasons, claims 12-16, 24-30, 37-43, 119-125, 127-131, 138-142 are also additionally allowable over the cited art.

Additionally, with respect to Applicant's **dependent claim 12**, the cited portions of *Bentall* do not teach the limitation of the condition "if different physical port of said link between said first node and said adjacent nodes is unavailable." The Office Action merely states on p. 6 that the limitations of claim 12 "have been addressed in claim 1."

Applicant respectfully disagrees. The Office Action does not discuss this limitation of Applicant's claim 12. Further, the cited portions of *Bentall* do not discuss the evaluation of whether a physical port of a link between a node and an adjacent node is unavailable. Indeed,

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the cited material does not at all discuss physical ports. At least for this reason, claim 12 and all claims dependent therefrom are additionally allowable over the cited art. At least for similar reasons, claims 25, 38, 120, 128, 139, and all claims dependent therefrom are also additionally allowable over the cited art.

Additionally, with respect to Applicant's **dependent claim 25**, the Office Action proposes is silent with regard to the limitation of "changing a state of said virtual path to down." Applicant respectfully submits that this limitation is not disclosed in the cited portions of the references, and that claim 25 and all claims dependent therefrom are therefore additionally allowable over the cited art. At least for similar reasons, claims 31, 38, 44, 128, 132, 139, and 143, and all claims dependent therefrom are also additionally allowable over the cited art.

Additionally, with respect to Applicant's **dependent claims 27 and 40**, the Office Action proposes, without supporting argument or citation, that the limitations of these claims would be "inherently" achieved. Applicant respectfully disagrees.

MPEP § 2112(IV) makes clear that the Office Action must provide rationale or evidence tending to show inherency:

> In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic <u>necessarily</u> flows from the teachings of the applied prior art.

(Emphasis in original.)

Applicant respectfully submits that the Office Action has provided no such evidence or rationale tending to show any inherency of the limitations of claims 27 and 40. If it is the

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Examiner's position that the rejection is based on a personal knowledge of the proposed inherency, Applicant requests that the facts be supported by an affidavit from the Examiner in accordance with MPEP § 2144.03(C) and 37 C.F.R. § 1.104(d)(2). Applicant respectfully submits that the currently pending rejections of claims 27 and 40 fail to meet the standards for a rejection under § 103(a), and should be withdrawn.

Similarly, with regard to Applicant's **dependent claims 15, 16, 20, 21, 28, 29, 41, and 42**, the Office Action summarily dismisses the limitations as being "well known in the art." Applicant respectfully disagrees with this assessment. If it is the Examiner's position that the rejection is based on a personal knowledge that these limitations are well-known, Applicant requests that the facts be supported by an affidavit from the Examiner in accordance with MPEP § 2144.03(C) and 37 C.F.R. § 1.104(d)(2). Applicant respectfully submits that the currently pending rejections of claims 15, 16, 20, 21, 28, 29, 41, and 42 fail to meet the standards for a rejection under § 103(a), and should be withdrawn.

Additionally, with respect to Applicant's **dependent claims 16, 21, 29, and 42**, the Office Action is silent with regard to the limitation of a calculation "based on network traffic condition." Applicant respectfully submits that this limitation is not disclosed in the cited portions of the references, and that claims 16, 21, 29, and 42 are therefore additionally allowable over the cited art.

Additionally, with respect to Applicant's **dependent claims 31**, the Office Action is silent with regard to the limitation of "a timer." Applicant respectfully submits that this
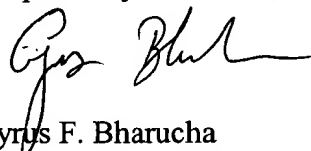
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limitation is not disclosed in the cited portions of the references, and that claim 31 and all claims

dependent therefrom are therefore additionally allowable over the cited art. At least for similar

reasons, claim 132 and all claims dependent therefrom are also additionally allowable over the

cited art.

CONCLUSION

Applicant submits that all claims are now in condition for allowance, and an early notice

to that effect is earnestly solicited. Nonetheless, should any issues remain that might be subject

to resolution through a telephonic interview, the Examiner is requested to telephone the

undersigned.

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with the United States Postal Service as First Class Mail in an
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_____   2006 Oct 6
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